In accordance with this method, the correction transmission line is divided equally and each half-part thereof is applied to the signal transmission line. Moreover, the half-parts of the correction transmission line are added one before and one after the parasitic element.

In another embodiment, a method in accordance with the purpose of the present invention enhances signal transmission characteristics of a signal transmission line. This method includes determining an intrinsic capacitance (or inductance) of a parasitic element that exists at a discontinuity portion of a signal transmission line which has an impedance. This method further includes calculating a delay associated with a correction impedance that, based at least in part on the intrinsic capacitance (or inductance) and the correction impedance, is operative to increase the signal transmission line impedance (or decrease the signal transmission line impedance if it is an intrinsic inductance of the parasitic element). Furthermore, this method includes adding the correction impedance to the signal transmission line so that one half of the calculated delay is added before and the other half of the calculated delay is added after the portion of the signal transmission line at which the parasitic element exists.

An advantage of the present invention is that it can eliminate the negative affects of parasitic element discontinuity within an electrical system.

Another advantage of the present invention is that it provides for the precise calculation of operating characteristics that are affected by capacitance cancellation.

Yet another advantage of the present invention is that it controls the impedance and cross talk levels in the ASCI design and incorporates features that cancel out the negative effects of the input capacitance of the silicon die.

Other advantages of the present invention are that it enhances the manufacturing of electrical systems, is cost efficient, and is easy to implement.

Further advantages of the present invention will be understood by those skilled in the art from the description herein. The advantages of the invention will also be realized and attained from practice of the invention disclosed herein.

BRIEF DESCRIPTION OF THE DRAWINGS

The aforementioned and related advantages and features of the present invention will become apparent upon reviewing the following detailed description of the invention, taken in conjunction with the following drawings, where like numerals represent like elements, in which:

FIG. 1 illustrates correcting the transmission line in order to compensate for parasitic capacitance.

FIG. 2 illustrates correcting the transmission line in order to compensate for parasitic inductance.

FIG. 3 shows the signal paths as determined in accordance with the method of the present invention.

FIG. 4 shows a detailed view of the signal paths as determined in accordance with the method of the present invention.

FIG. 5 shows another detailed view of the signal paths as determined in accordance with the method of the present invention.

FIG. 6 shows another detailed view of the signal paths as determined in accordance with the method of the present invention.

FIG. 7 shows another detailed view of the signal paths as determined in accordance with the method of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The present invention will now be described with reference to Figures 1-7.

The above detailed description of the invention has been provided for the purposed of illustration and description. Although the present invention is described with respect to a specific embodiment, various changes and modifications may be suggested to persons of ordinary skill in the art, and it is intended that the present invention encompass such changes and modifications as they fall within the scope of the claims appended hereto.

The present invention allows for a cancellation (correction) of parasitic elements on a signal transmission line, be they capacitive or inductive, by the use of a length of "correcting" transmission line with a propagation time Tc. The correcting transmission line will have a characteristic impedance, for example Zc, and an intrinsic propagation delay per unit length of Dc (i.e., picoseconds per inch). The parasitic element to be cancelled out or counteracted could be a parallel connected capacitance Cp (such as a stub connected